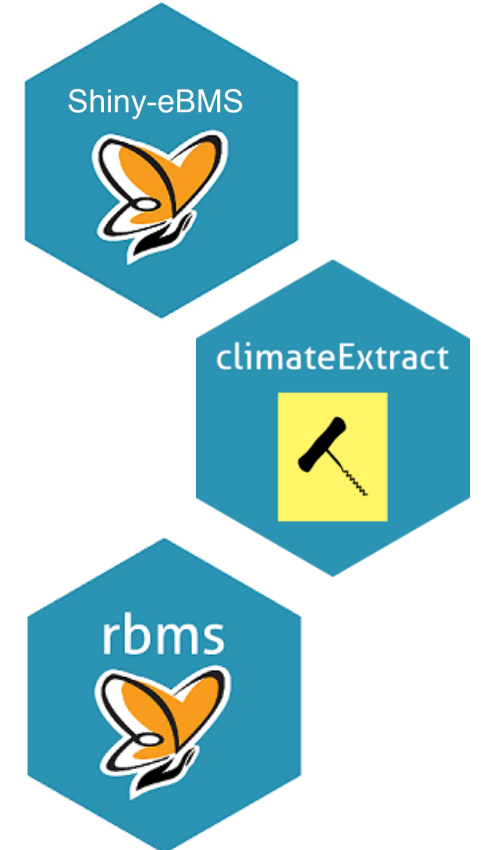


# eBMS – rbms shiny-app

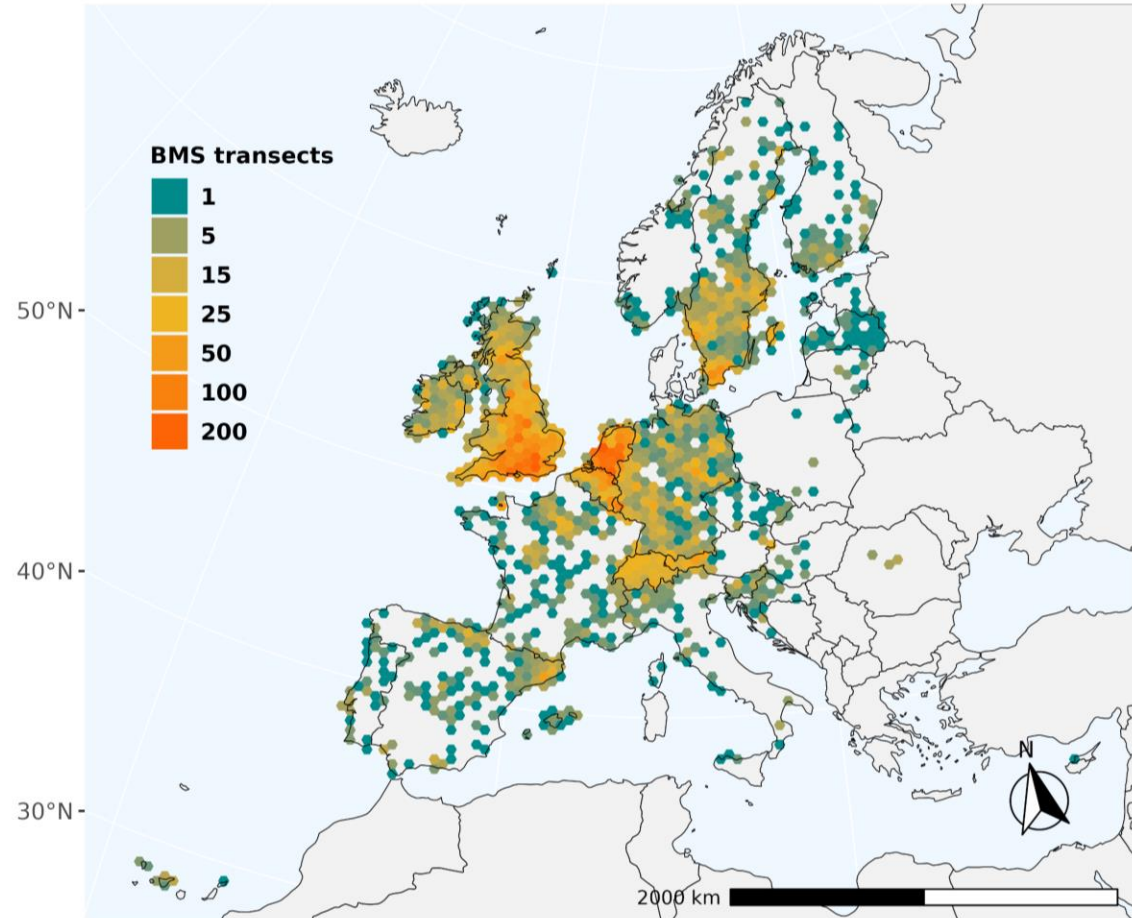
Reto Schmucki & Dylan Carbone

14 Feb 2024



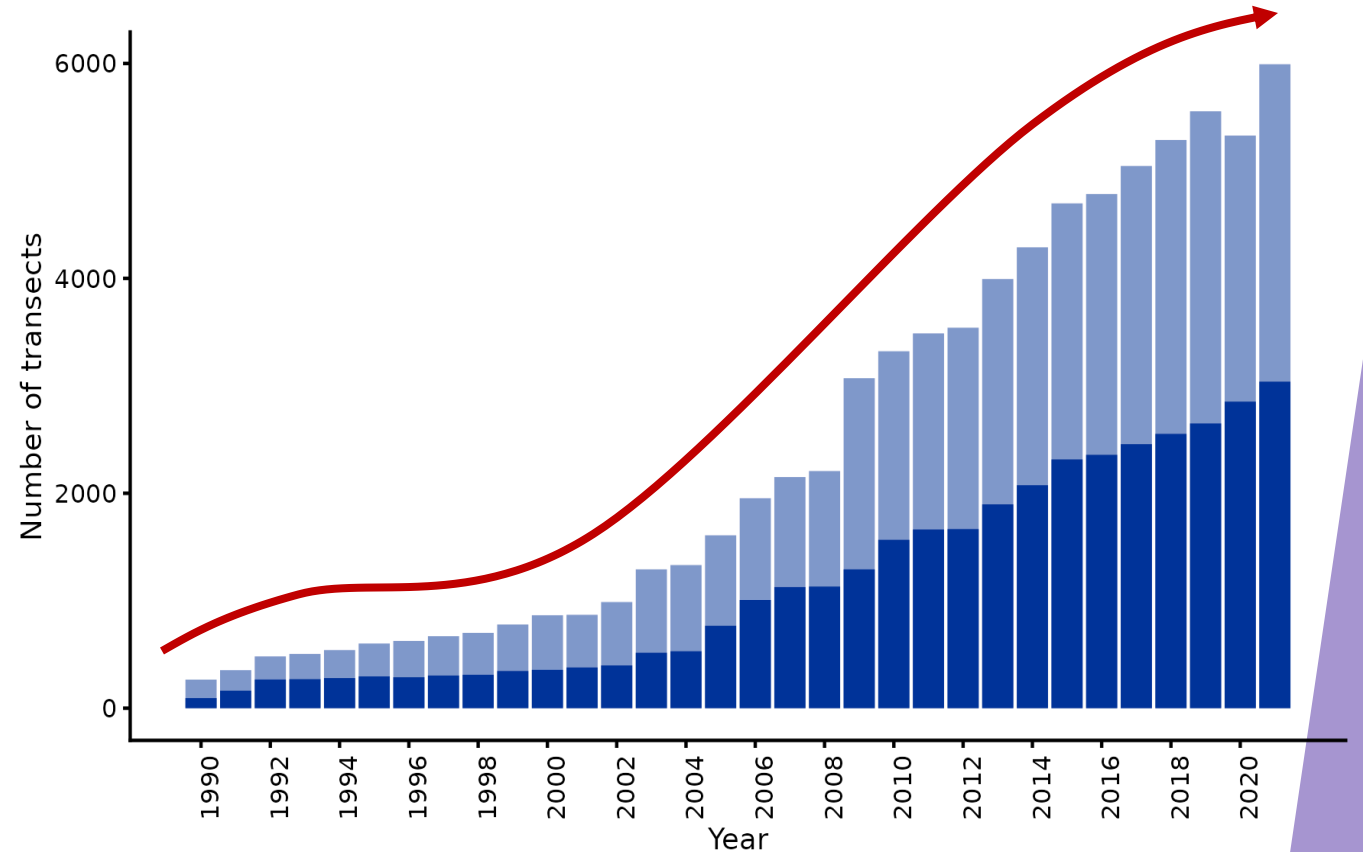
# eBMS central database

- 16,066,617 Number of butterfly count,
- 13,214 Number of transects,
- 7,850 km Monitored each year,
- 31 Monitoring Schemes.



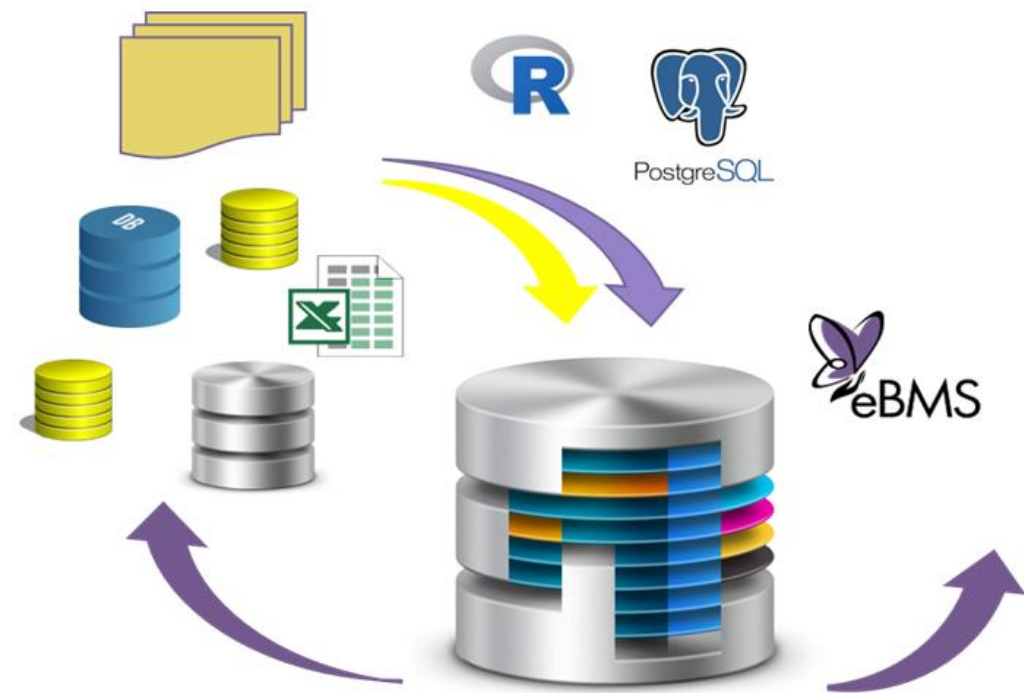
# eBMS central database

- 16,066,617 Number of butterfly count,
- 13,214 Number of transects,
- 7,850 km Monitored each year,
- 31 Monitoring Schemes.



# eBMS central database

- Annual update,
- Indicators development and update
- Science-driven data requests



# R packages

## ✓ rbms



1. Shape BMS data
2. Calculate annual flight curves,
3. site indices,
4. collated indices,
5. bootstrap confidence intervals

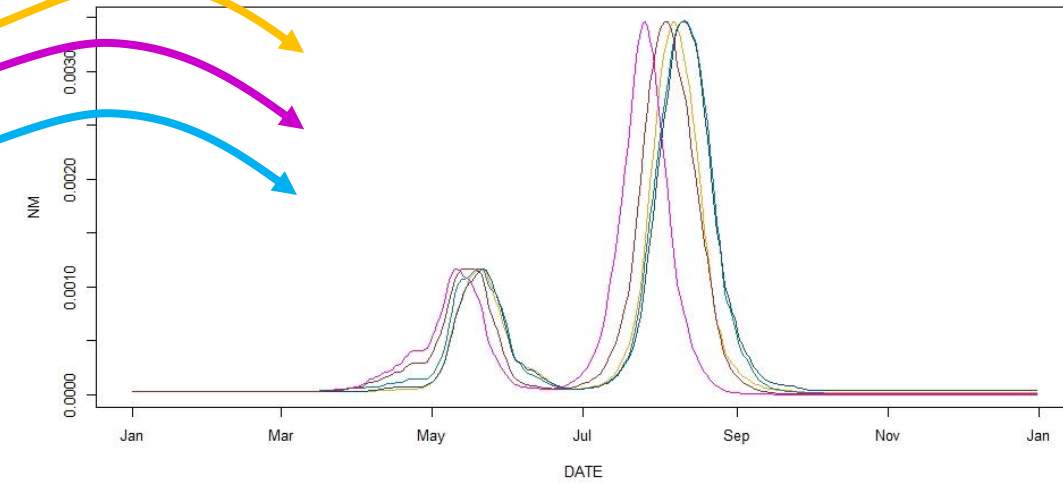
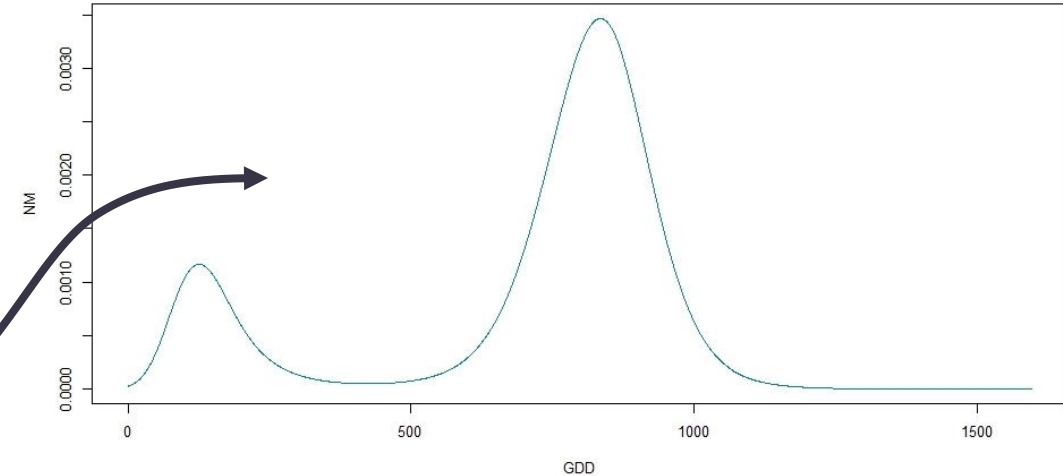
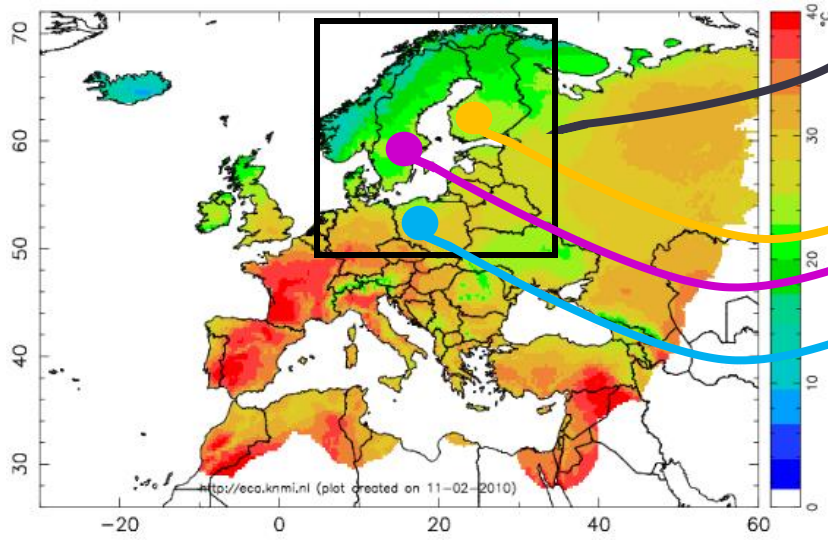
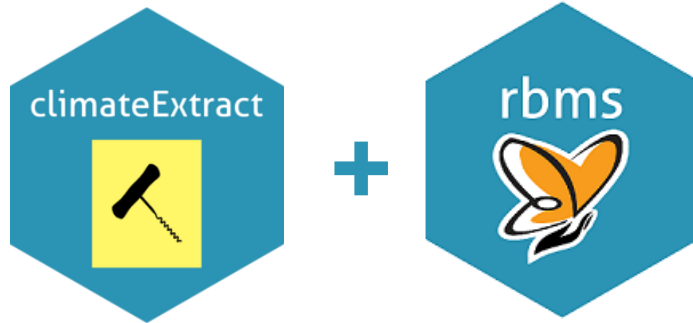
## ✓ climateExtract



1. Access daily climate data
2. Extract point-specific climate time-series
3. Calculate Growing Degree Days (GDD)
4. Daily, weekly, monthly, annually
5. data updated every 6 months (0.1° grid)



# R packages



# eBMS shiny app (Laufen 2022)

The screenshot displays the eBMS shiny app interface. At the top, a dark blue navigation bar contains the following tabs: "eBMS butterfly survey data formatting", "Introduction", "Table upload", "Table reformatting", "Info table upload", "Info table reformatting", and "Results". Below this, a grid of menu items is visible, with "Map of transects" highlighted in green. The menu items include: "Number of transects per year", "Number of visits per transects", "Number of visits per month of the year", "Number of species per year", "Number of individuals per year", "Number of species", "Distribution and species richness of each transect", "Number of species detected in each butterfly monitoring week in 2020", and "Number of individuals counted per km in each butterfly monitoring week in 2020". The main content area features a map of the British Isles with a grid of latitude and longitude coordinates. The y-axis is labeled "Longitude" and ranges from 50°N to 60°N. The x-axis is labeled "Latitude" and ranges from 8°W to 2°E. A large, semi-transparent R logo is overlaid on the map. To the right of the map, a yellow box contains the text "SHINY APP" in red, with a red ribbon graphic tied around it.



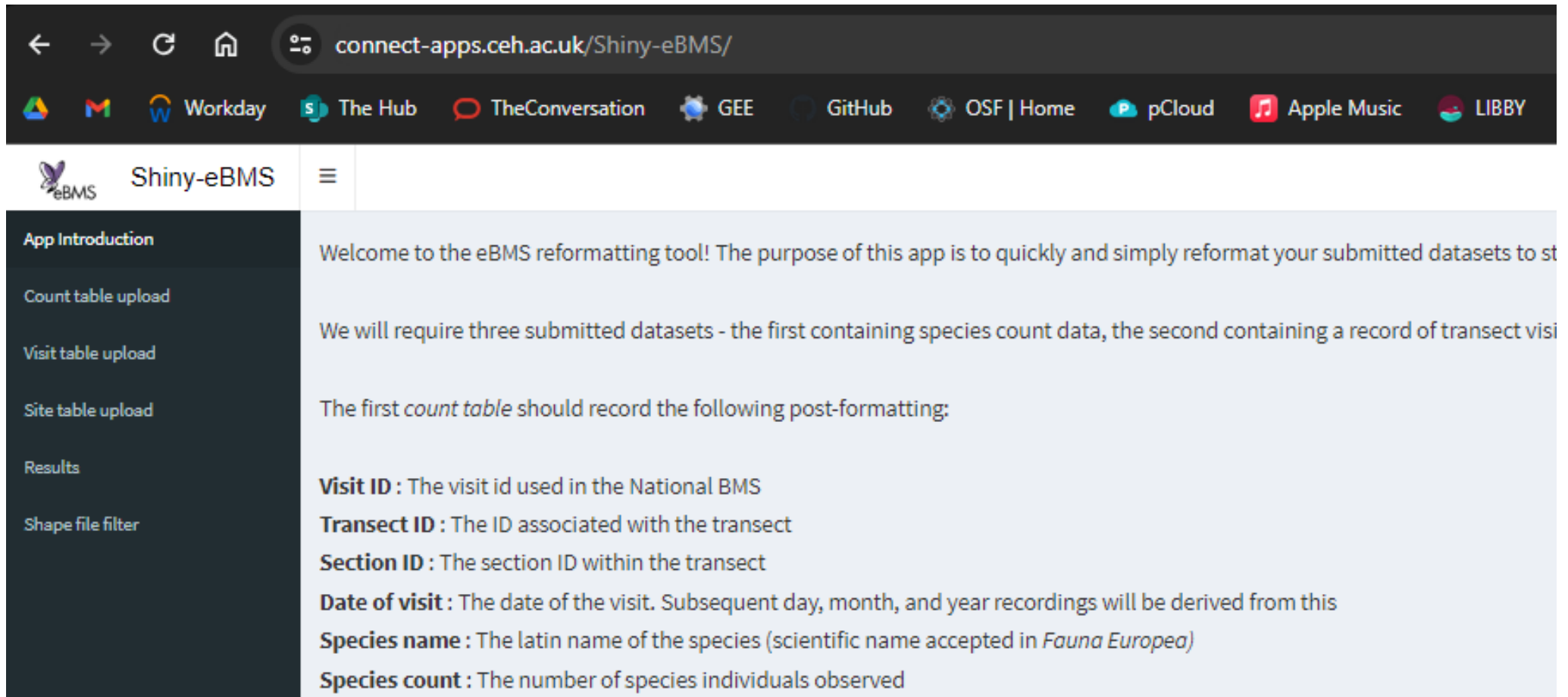
# R shiny app (Laufen 2022)

<https://connect-apps.ceh.ac.uk/Shiny-eBMS/>





# eBMS Shiny app



The screenshot shows a web browser window with the address bar displaying `connect-apps.ceh.ac.uk/Shiny-eBMS/`. The browser's taskbar includes icons for Workday, The Hub, TheConversation, GEE, GitHub, OSF | Home, pCloud, Apple Music, and LIBBY. The application header features the eBMS logo and the text "Shiny-eBMS". A dark sidebar on the left contains a menu with the following items: "App Introduction", "Count table upload", "Visit table upload", "Site table upload", "Results", and "Shape file filter". The main content area displays the following text:

Welcome to the eBMS reformatting tool! The purpose of this app is to quickly and simply reformat your submitted datasets to st

We will require three submitted datasets - the first containing species count data, the second containing a record of transect visi

The first *count table* should record the following post-formatting:

- Visit ID** : The visit id used in the National BMS
- Transect ID** : The ID associated with the transect
- Section ID** : The section ID within the transect
- Date of visit** : The date of the visit. Subsequent day, month, and year recordings will be derived from this
- Species name** : The latin name of the species (scientific name accepted in *Fauna Europea*)
- Species count** : The number of species individuals observed



# eBMS Shiny app

- Upload your own CSV (or .rds)
- Identify the corresponding column
- Visualise your data,
- Standardise your data – (eBMS, rbms)
- Explore your data (figures, maps)

The screenshot shows the Shiny-eBMS application interface. At the top left is the eBMS logo and the text "Shiny-eBMS". A hamburger menu icon is on the right. The main content area is divided into a dark sidebar on the left and a light main panel on the right. The sidebar contains the following menu items: "App Introduction", "Count table upload", "Visit table upload", "Site table upload", "Results", and "Shape file filter". The main panel has a blue header "Table upload". Below it is a section "Choose CSV File" with a "Browse..." button and a "No file selected" status. Below that is a section "Please select Load example dataset" with a "Load example dataset" button. The next section is "Table inputs" with a question "Have you recorded the visit ID?" and two radio button options: "I have recorded visit ID" (selected) and "I have not recorded visit ID". Below this is a section "Select the visit ID column" with an empty text input field.



# eBMS Shiny app

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The screenshot displays the Shiny-eBMS application interface. The top navigation bar includes the eBMS logo, the title 'Shiny-eBMS', and a hamburger menu icon. The left sidebar contains a list of navigation options: 'App Introduction', 'Count table upload', 'Visit table upload', 'Site table upload', 'Results', and 'Shape file filter'. The main content area is titled 'Table upload' and features a 'Choose CSV File' section with a 'Browse...' button and a 'No file selected' status. Below this, there is a prompt 'Please select *Load example dataset*' and a 'Load example dataset' button. A red circle highlights the 'Choose CSV File' section. Overlaid on the bottom right is a Windows File Explorer window showing the path 'switzerland > Samsung\_T5 (D:) > ebms\_database > data > update2021'. The file list shows a file named '1900\_butterfly\_count\_v1.csv' selected, with details: Type: Microsoft Excel Comm, Size: 7.62 MB, Date modified: 24/10/2023 16.



# eBMS Shiny app

- Upload your own CSV (or .rds)
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- Explore your data (figures, maps)

**Table inputs**

**Have you recorded the visit ID?**

I have recorded visit ID  
 I have not recorded visit ID

**Select the visit ID column**

visit\_ID

**Select transect ID column**

transect\_ID

**Select the section ID column**

**Select date of survey column**

date

visit\_ID  
transect\_ID  
**date**  
species\_name  
count

**Select date format (please ignore separator)**

day/month/year  
 month/day/year  
 year/month/day



# eBMS Shiny app

- Upload your own CSV (or .rds)
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- Visualise your data,
- Standardise your data – (eBMS, rbms)
- Explore your data (figures, maps)

Original table    Reformatted table

Show  entries

	visit_ID ⚡	transect_ID ⚡	date
1	68314220031	683142	2003-05-28
2	68314220031	683142	2003-05-28
3	68314220031	683142	2003-05-28
4	68314220031	683142	2003-05-28
5	68314220031	683142	2003-05-28



# eBMS Shiny app


- Upload your own CSV (or .rds)
- Identify the corresponding column
- Visualise your data,
- **Standardise your data – (eBMS, rbms)**
- Explore your data (figures, maps)

Original table    **Reformatted table**

Show  entries

	visit_id	transect_id	section_id	visit_date	year	n
1	68314220031	683142		2003-05-28	2003	
2	68314220031	683142		2003-05-28	2003	
3	68314220031	683142		2003-05-28	2003	
4	68314220031	683142		2003-05-28	2003	
5	68314220031	683142		2003-05-28	2003	
6	68314220031	683142		2003-05-28	2003	
7	68314220031	683142		2003-05-28	2003	

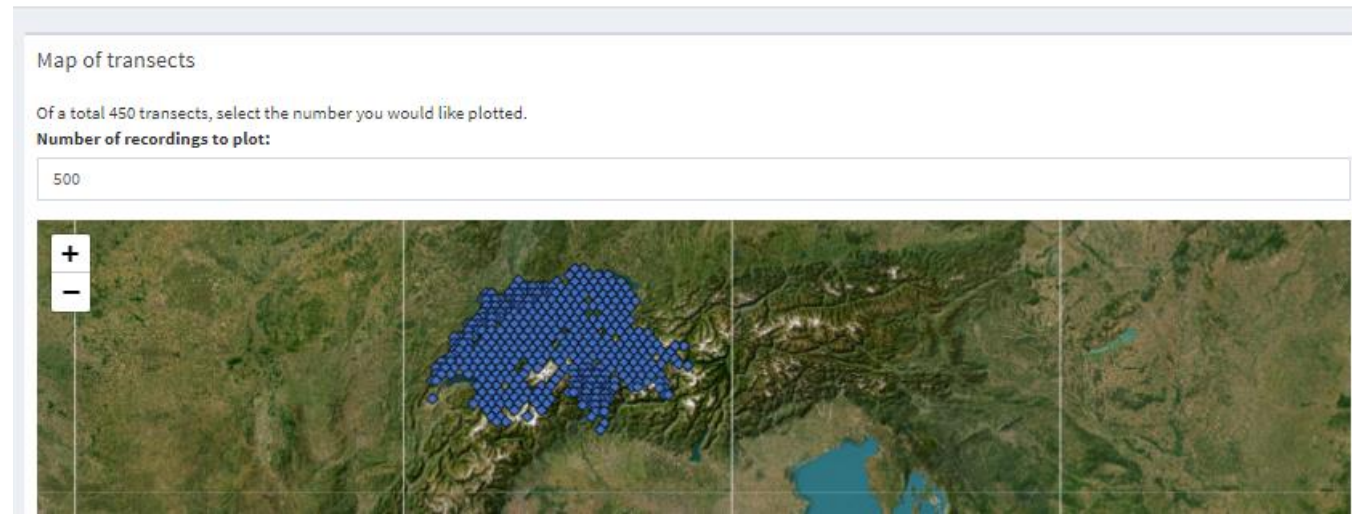
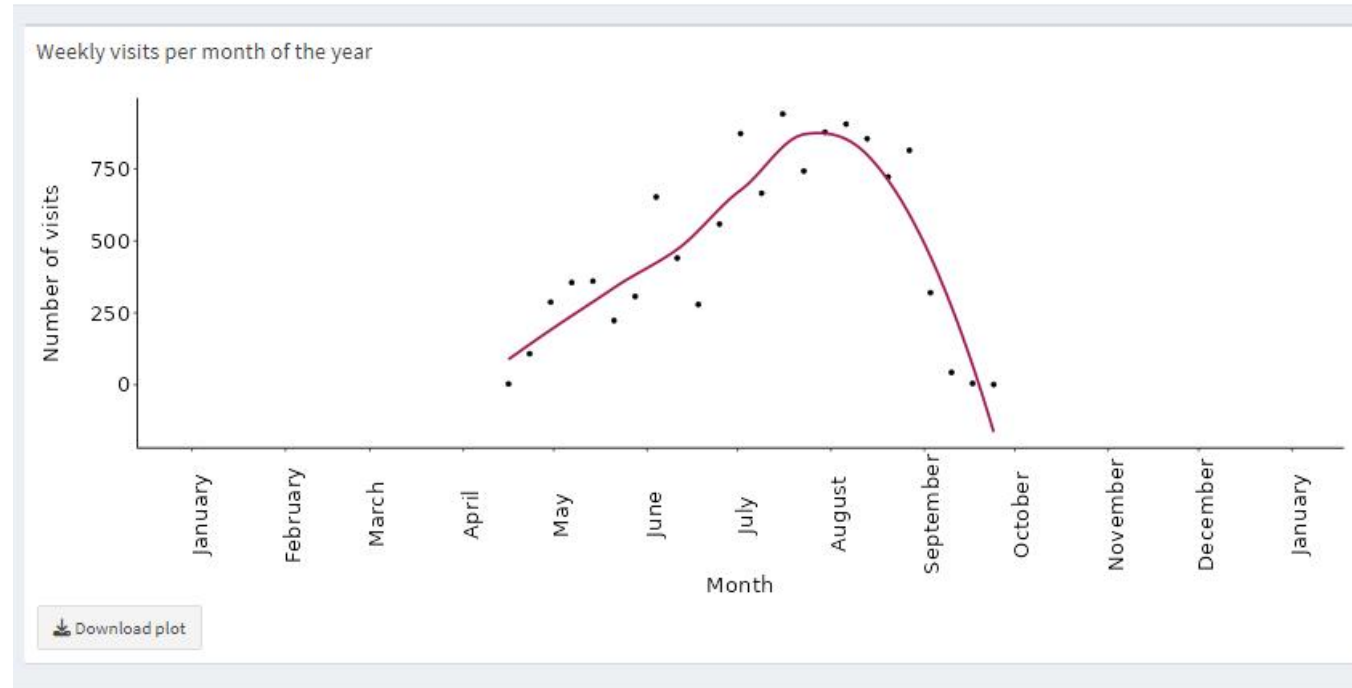
Download

 Download output count table



# eBMS Shiny app

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- Explore your data (figures, maps)



# eBMS Shiny app

- Upload your own CSV (or .rds)
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- Visualise your data,
- Standardise your data – (eBMS, rbms)
- Explore your data (figures, maps)



Species per year

Number of species per transect per year

Biodiversity transect map

Of a total 450 transects, select the number you would like plotted.

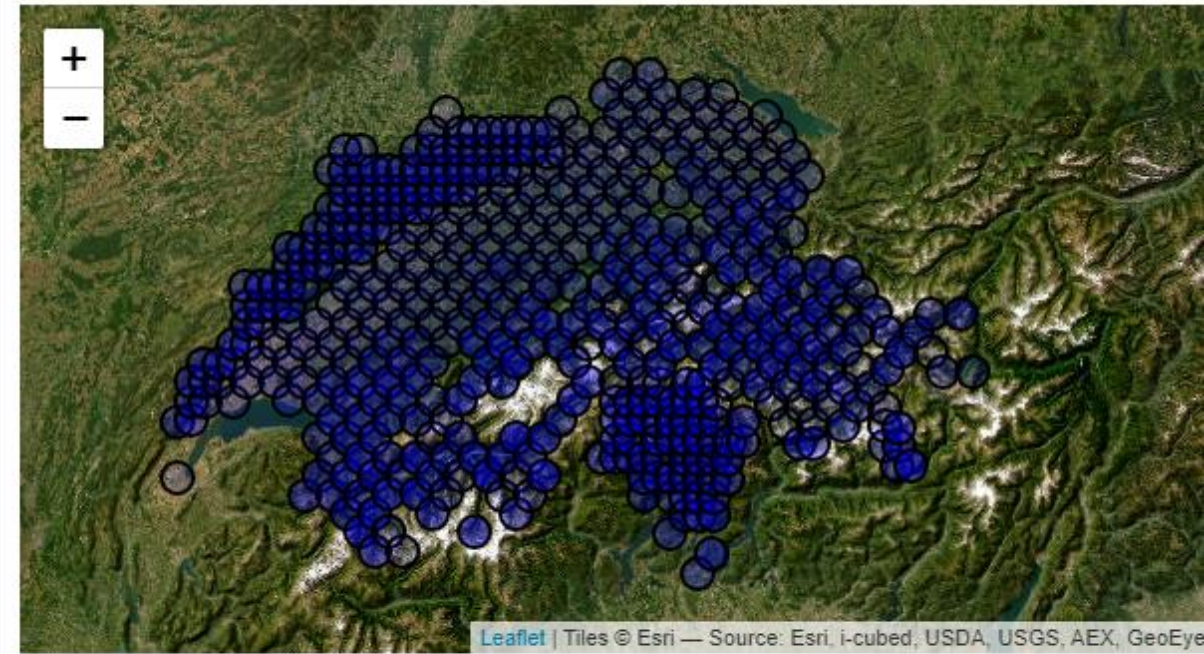
**Number of recordings to plot:**

500

**Would you like data to be presented at a transect or a section level**

Transect level

Section level



Download plot

Count per year

Number of individuals per km per month of the year



# eBMS Shiny app

- Upload your own CSV (or .rds)
- Identify the corresponding column
- Visualise your data,
- Standardise your data – (eBMS, rbms)
- Explore your data (figures, maps)

Clouded Apollo

Download plot

Select a species of interest

Parnassius mnemosyne

Count per year    Species count per transect per year    **Species count transect map**    Species count per km per month of the year

Of a total 450 transects, select the number you would like plotted.


**Number of recordings to plot:**

500

**Would you like data to be presented at a transect or a section level**

Transect level

Section level



Download plot



# Express your needs and wishes

➤ Write in the chat



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# Thank you

